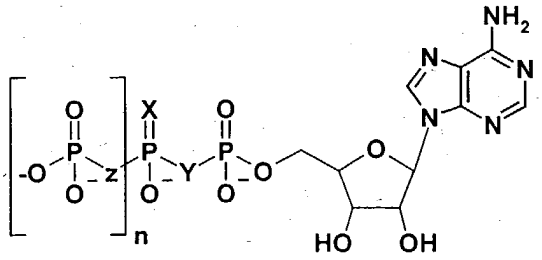


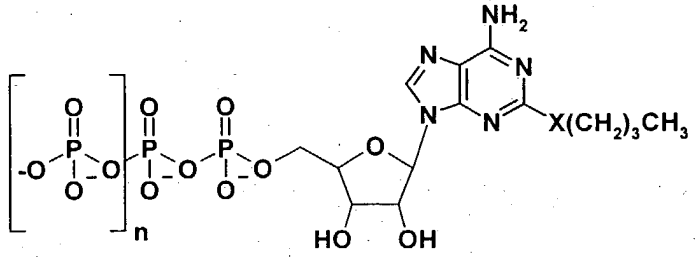
1 **a** : X = S, Y = O, Z = O, n = 0

b : X = O, Y = CH_2, Z = O, n = 1

c : X = O, Y = O, Z = CH_2, n = 1

d : X = S, Y = CH_2, Z = NH, n = 1

Fig. 1A



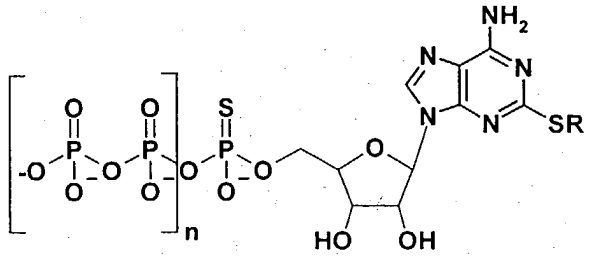
2 **a** : n = 1, X = S

b : n = 0, X = S

c : n = 1, X = NH

d : n = 1, X = O

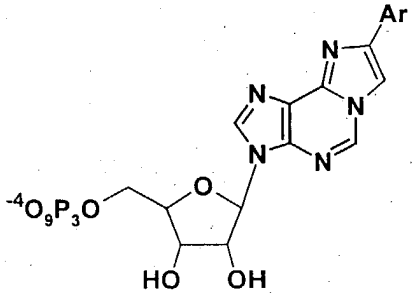
Fig. 1B



3. n = 1, **a** :R = hexyl, **b** :R = benzyl

4. n = 0, **a** :R = hexyl, **b** :R = benzyl

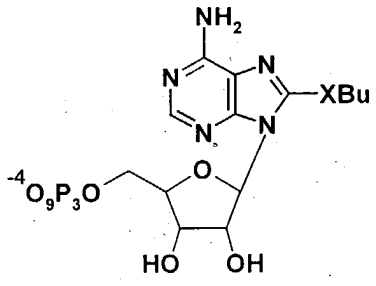
Fig. 1C



5 **a** : Ar = p-NO_2-C_6H_4

b : Ar = p-NH_2-C_6H_4

Fig. 1D



6. X = S

7. X = NH

8. X = O

Fig. 1E

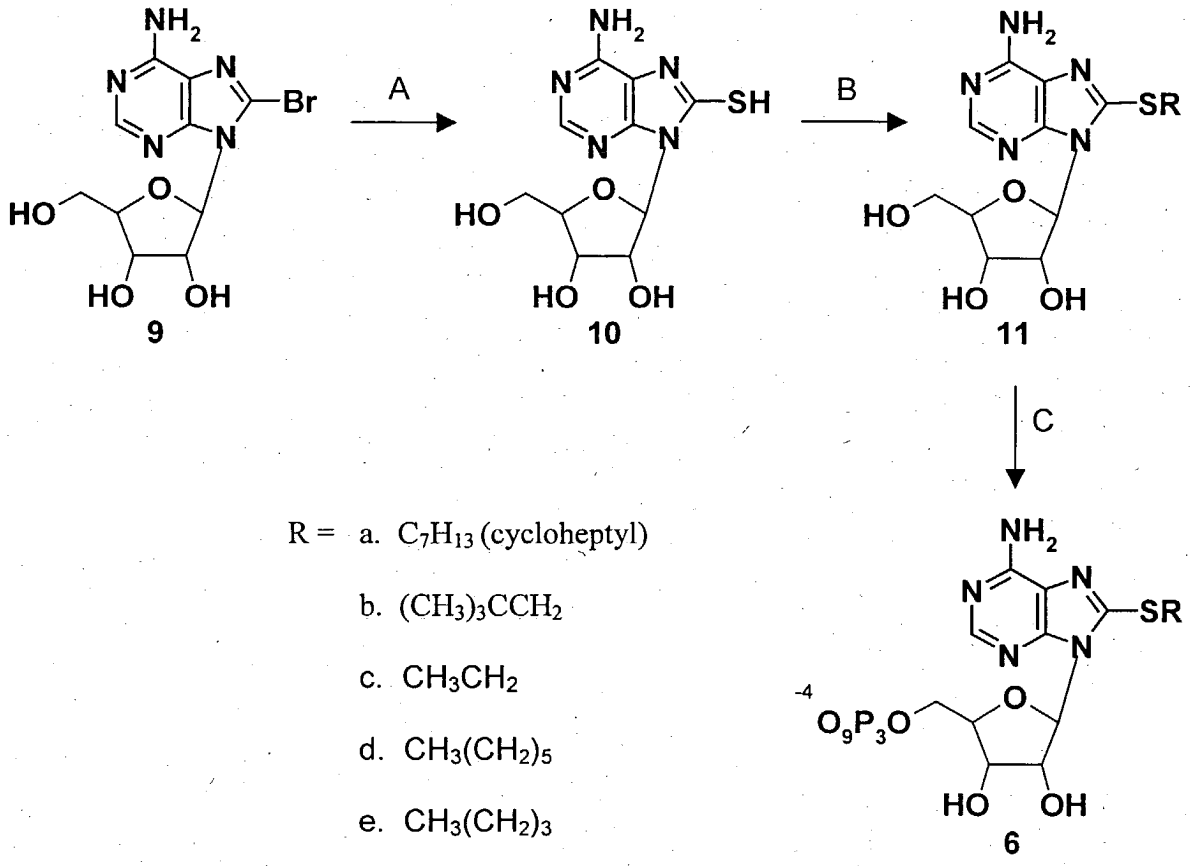
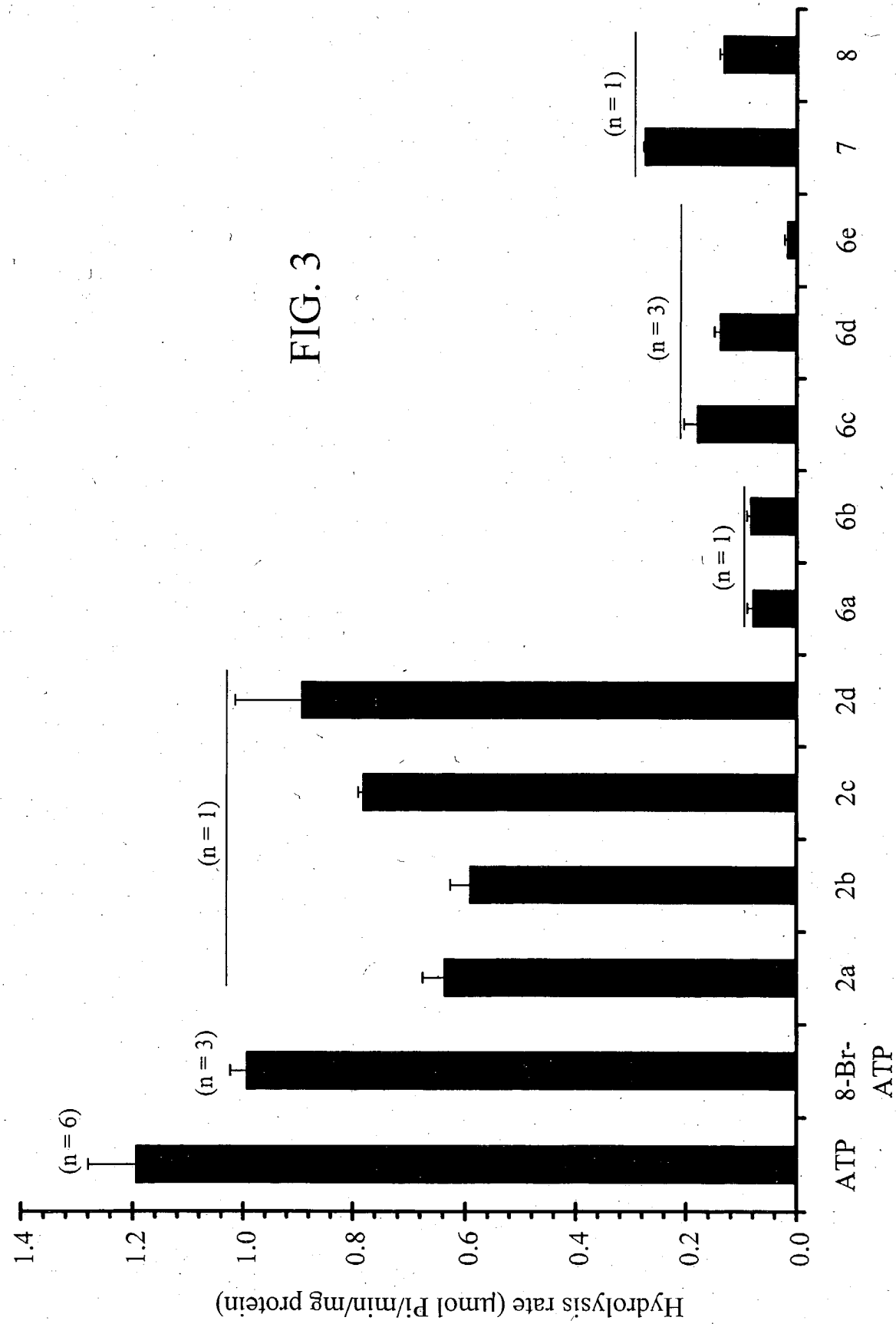

NH2
N
N
N
N
Br
HO
O
HO
OH
9
A
SH
10
B
SR
11
C
R = a. C7H13 (cycloheptyl)
b. (CH3)3CCH2
c. CH3CH2
d. CH3(CH2)5
e. CH3(CH2)3
-4
O9P3O
6

Fig. 2

FIG. 3


Hydrolysis rate (μmol Pi/min/mg protein)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
(n = 6)
(n = 3)
(n = 1)
(n = 1)
(n = 3)
(n = 1)
ATP
8-Br-ATP
2a
2b
2c
2d
6a
6b
6c
6d
6e
7
8

Substrates		Km (μM)	Vmax (μmol/min/mg protein)	Inhibitors		Ki (μM)
ATP		18 ± 1	1.65 ± 0.10	8-cyclohepthylS-ATP	6a	31 ± 2.5
ADP		33 ± 1	1.30 ± 0.08	8-CH_2tBuS-ATP	6b	45 ± 2.5
2-BuS-ATP	2a	36 ± 6	0.83 ± 0.05	8-hexylS-ATP	6d	16 ± 2.0
2-BuS-ADP	2b	63 ± 14	0.94 ± 0.10	8-BuS-ATP	6e	10 ± 2.0
2-BuNH-ATP	2c	32 ± 8	0.99 ± 0.10			
2-BuO-ATP2d	2d	28 ± 8	0.82 ± 0.09			
8-bromo-ATP		22 ± 5	0.63 ± 0.04			
8-ethylS-ATP	6c	12 ± 5	0.30 ± 0.03			
8-BuNH-ATP	7	20 ± 7	0.28 ± 0.03			
8-BuO-ATP	8	26 ± 5	0.20 ± 0.01			

FIG. 4

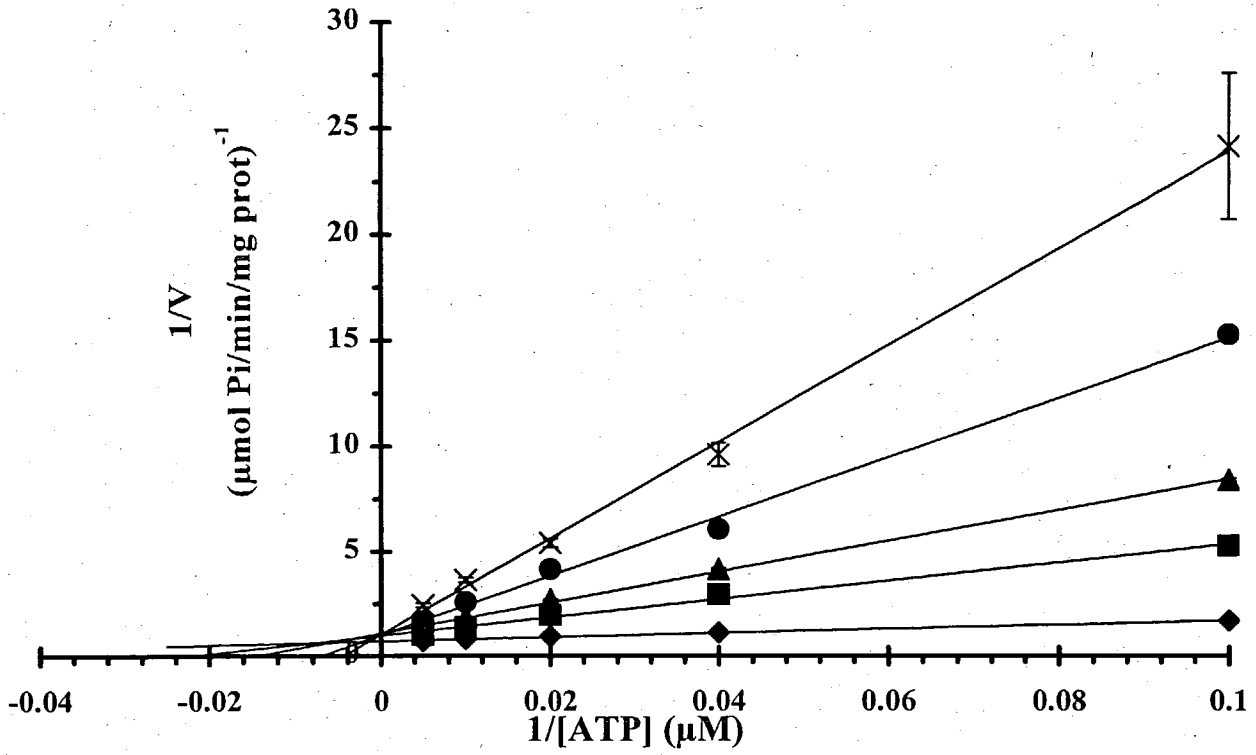

1/V
(µmol Pi/min/mg prot)-1
30
25
20
15
10
5
-0.04
-0.02
0
0.02
0.04
0.06
0.08
0.1
1/[ATP] (µM)

FIG. 5A

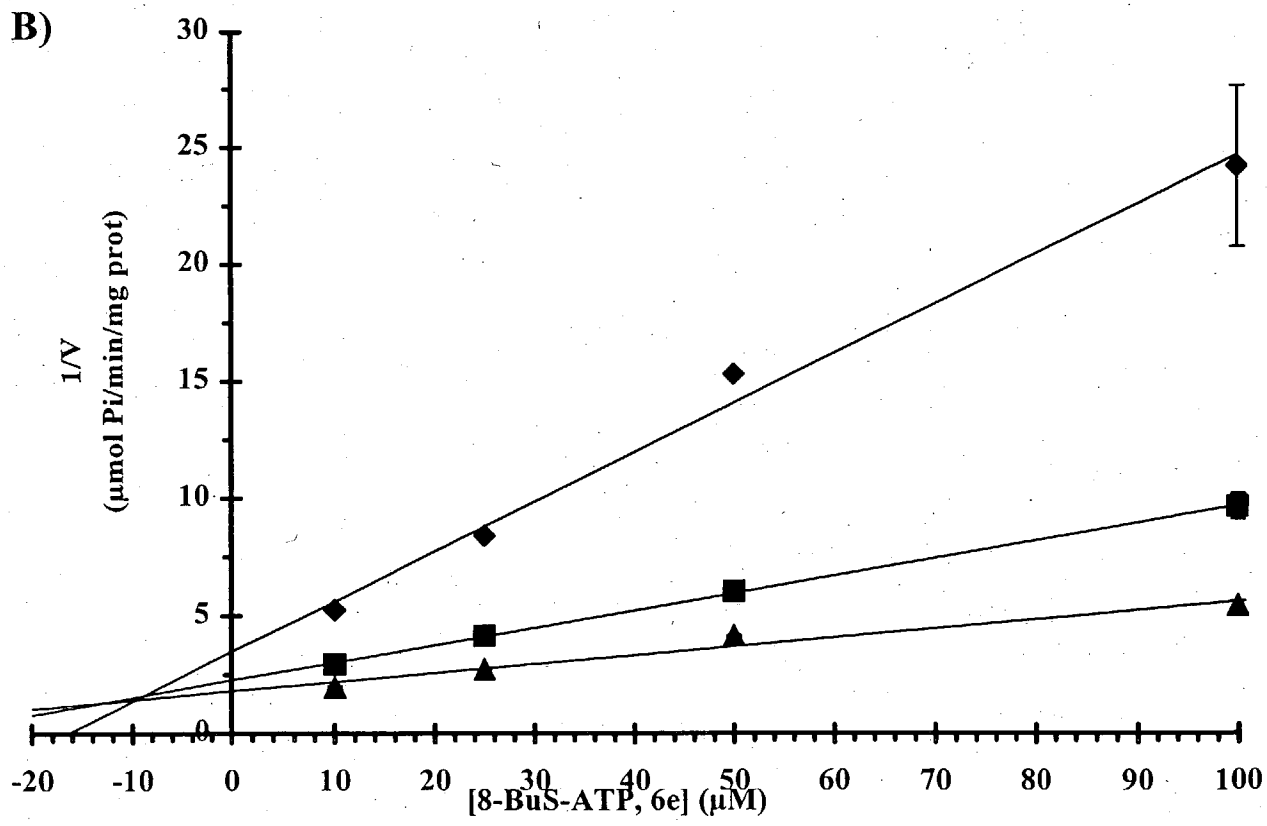

B)
1/V
(µmol Pi/min/mg prot)
30
25
20
15
10
5
0
-20
-10
0
10
20
30
40
50
60
70
80
90
100
[8-BuS-ATP, 6e] (µM)

FIG. 5B

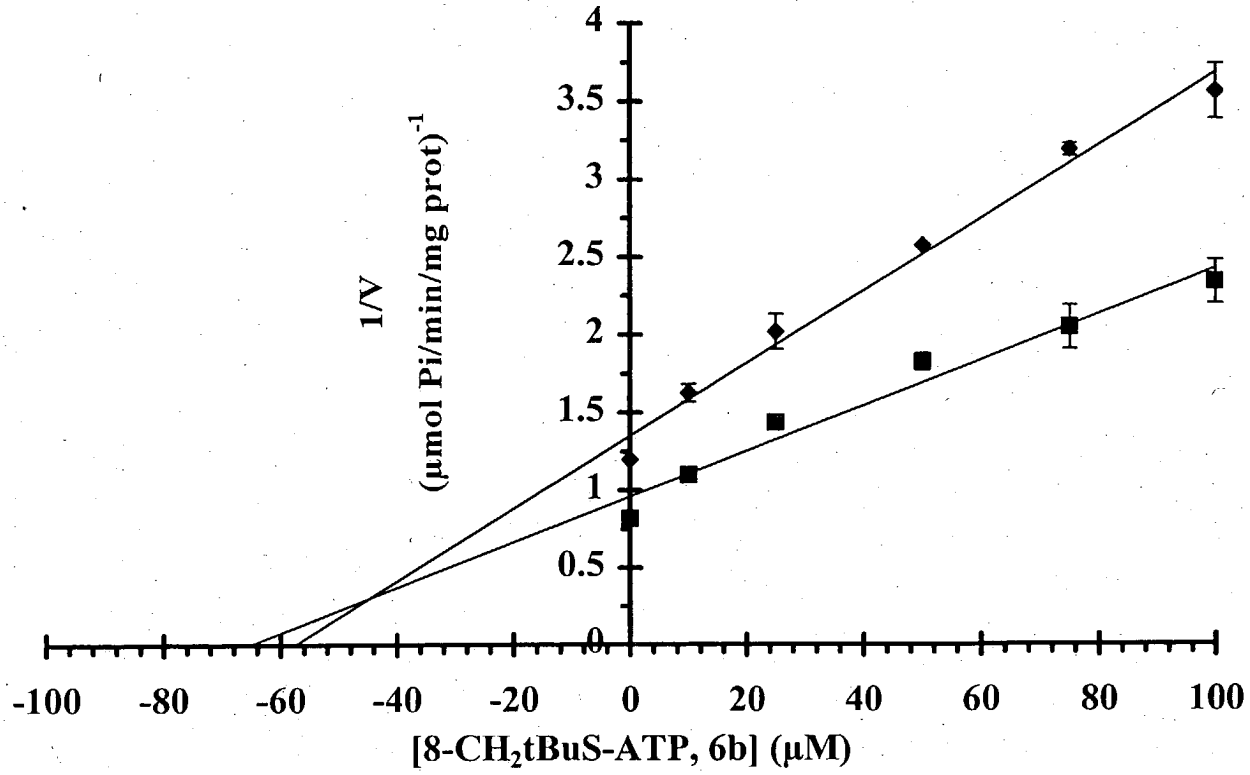

1/V
(µmol Pi/min/mg prot)$^{-1}$
4
3.5
3
2.5
2
1.5
1
0.5
0
-100
-80
-60
-40
-20
0
20
40
60
80
100
[8-CH$_2$tBuS-ATP, 6b] (µM)

FIG. 6A

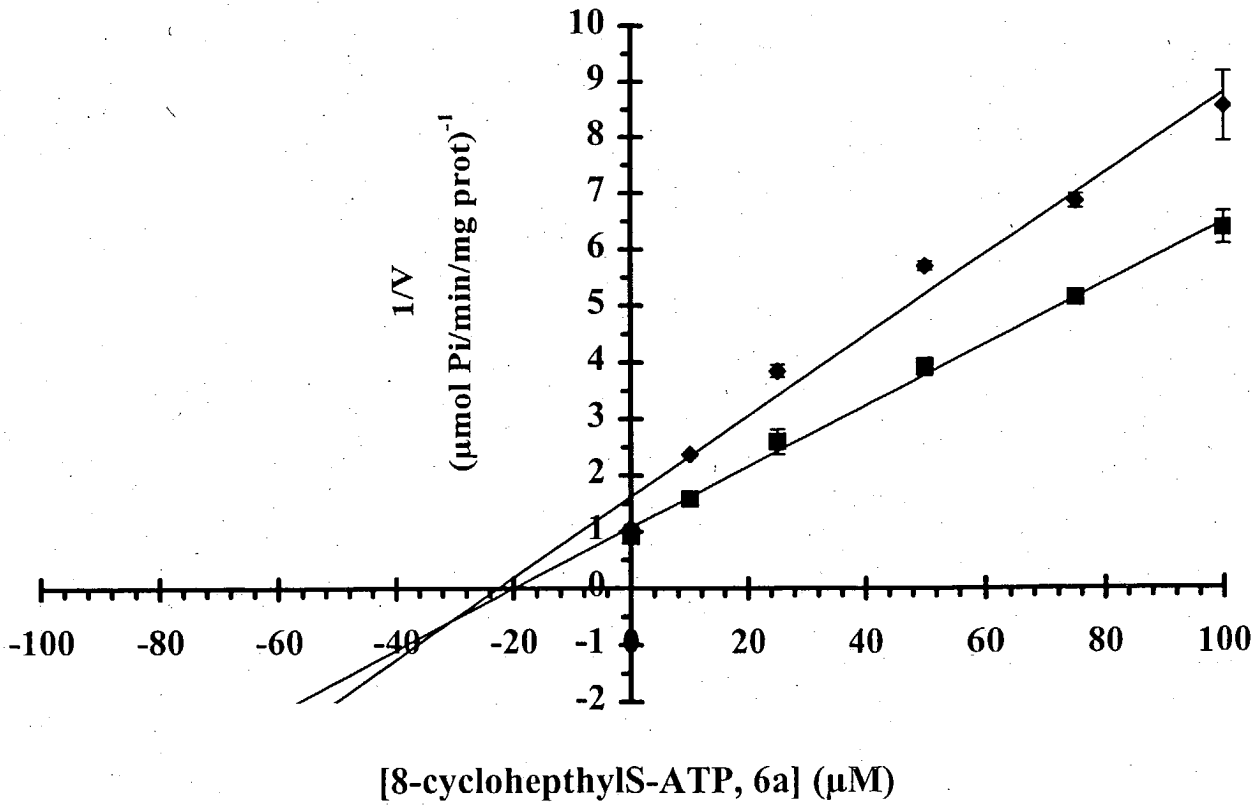

1/V
(µmol Pi/min/mg prot)$^{-1}$
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-100
-80
-60
-40
-20
20
40
60
80
100
[8-cycloheptylS-ATP, 6a] (µM)

FIG. 6B

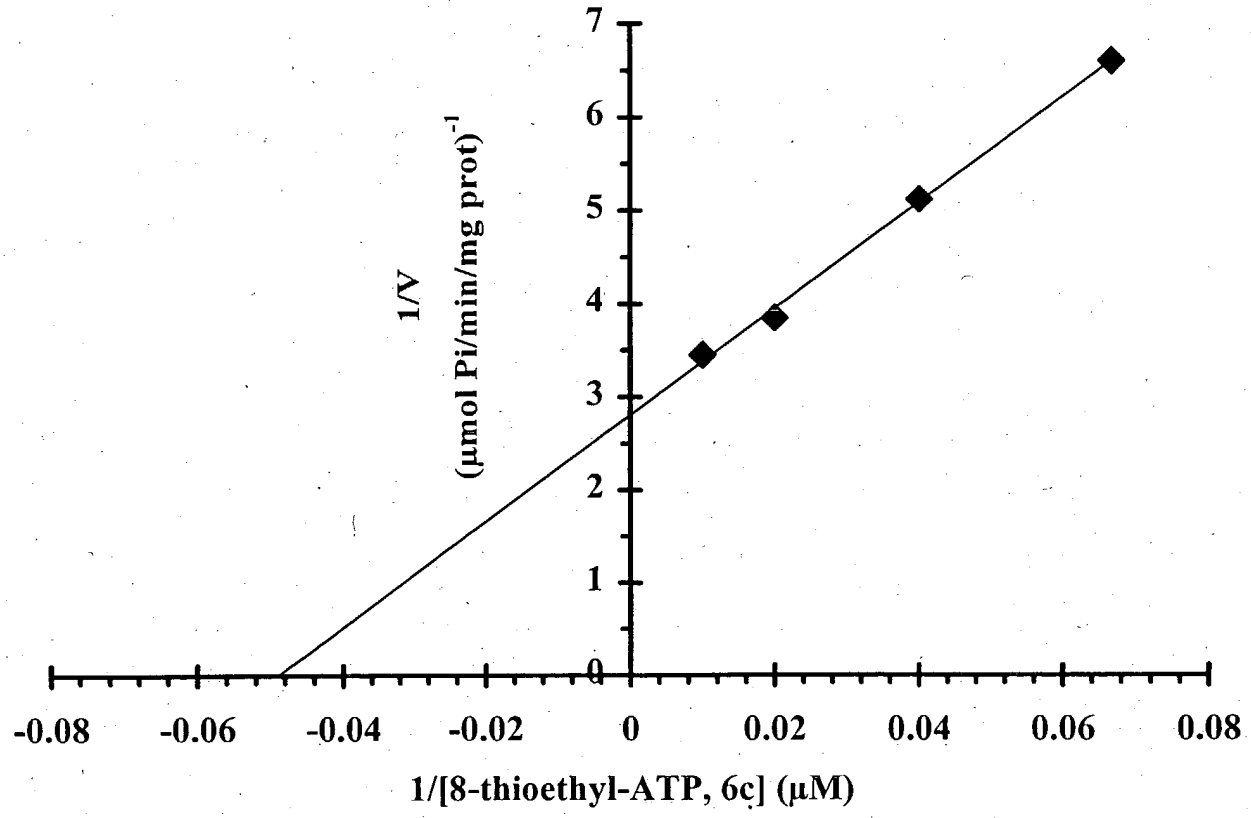

7
6
5
4
3
2
1
0
1/V
(µmol Pi/min/mg prot)-1
-0.08
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
0.08
1/[8-thioethyl-ATP, 6c] (µM)

FIG. 7A

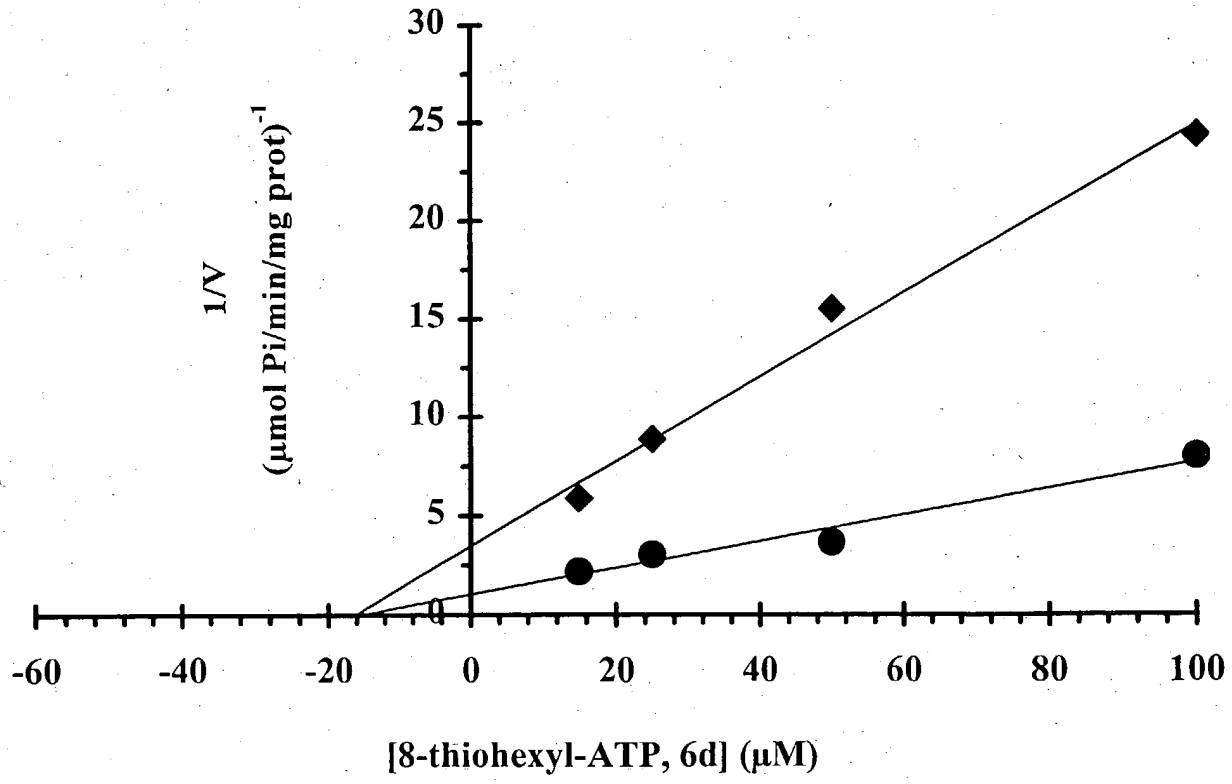

30
25
20
15
10
5
0
1/V
(µmol Pi/min/mg prot)-1
-60
-40
-20
0
20
40
60
80
100
[8-thiohexyl-ATP, 6d] (µM)

FIG. 7B

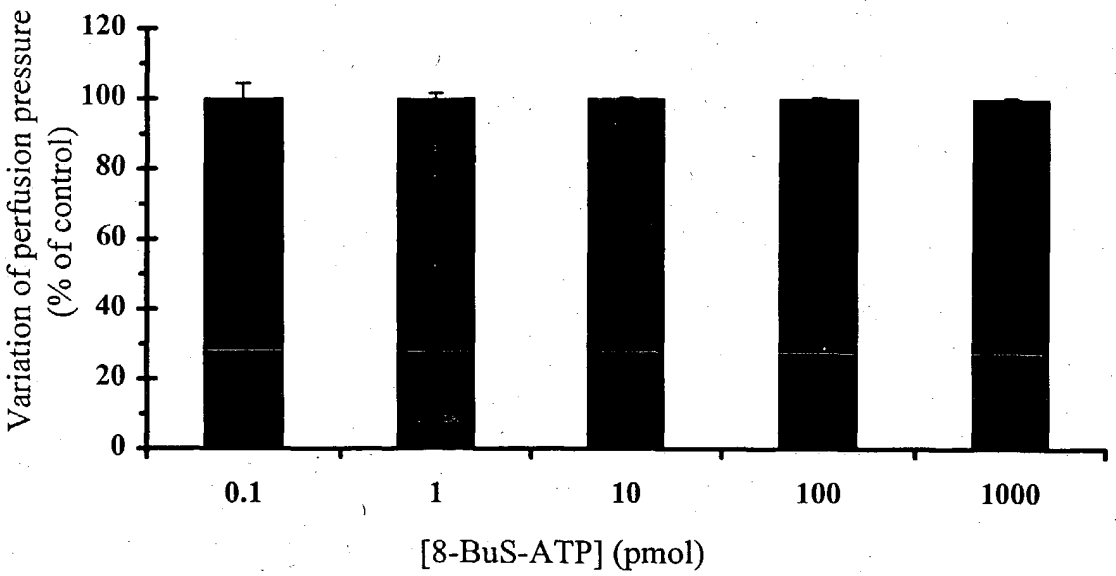


FIG. 8A

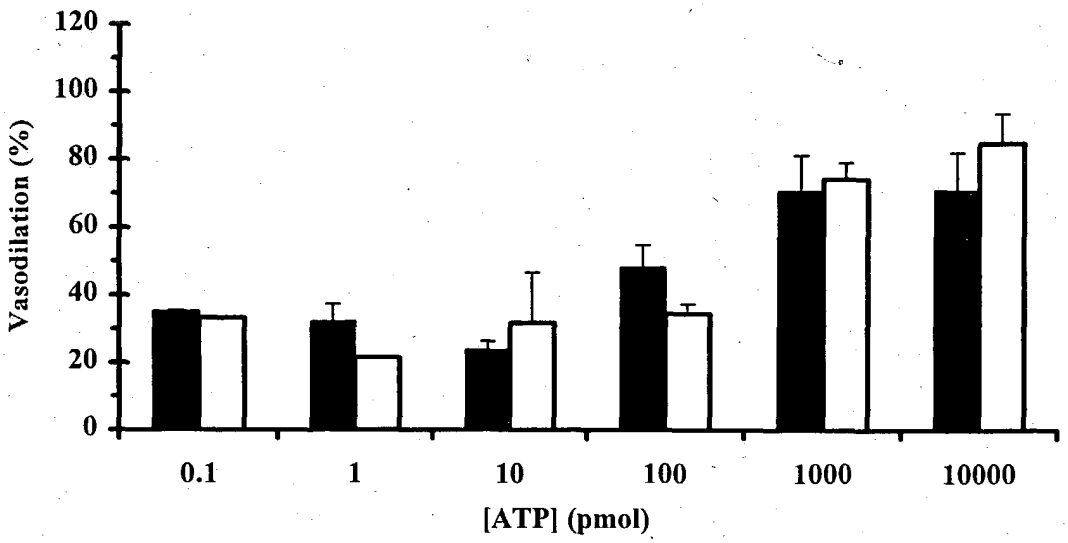


FIG. 8B

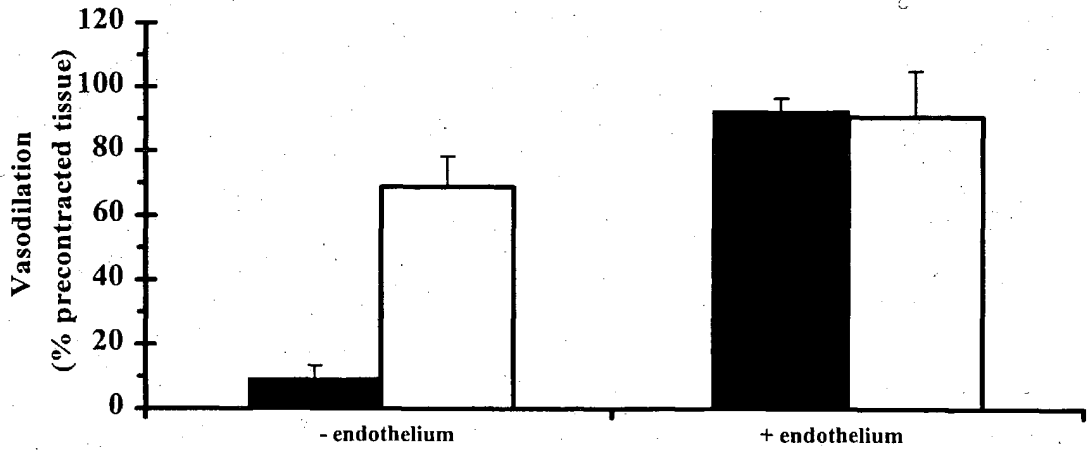


FIG. 8C